User Manual

Interfaces

RGB 580xi

Architectural Remote Interface with Audio and ADSP™

Extron® Electronics
INTERFACING, SWITCHING AND CONTROL

68-536-01 Rev. G
06 10

Safety Instructions • English

This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Consignes de Sécurité • Français

Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).

Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions• Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conserver les instructions• Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Eviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Avertissement

Alimentations • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

Déconnexion de l'alimentation• Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il a danger d'explosion s'll y a remplacment incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un ype equivalent recommande par le constructeur. Mettre au reut les batteries usagees conformement aux instructions du fabricant.

Sicherheitsanleitungen • Deutsch

Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits-und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdanschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stomversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegengestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

Schlitze und Öffnungen • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Litium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Instrucciones de seguridad • Español

Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.

Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaucion

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean especificamente recomendados por el fabricante, ya que podrian implicar riesgos.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearia ni eliminaria.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalientamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

安全须知 • 中文

这个符号提示用户该设备用户手册中有重要的操作和维护说明。

这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解所有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

警告

电源 • 该设备只能使用产品上标明的电源。 设备必须使用有地线的供电系统供电。 第三条线（地线）是安全设施，不能不用或跳过 。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。

电源线保护 • 妥善布线， 避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。 设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。 不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。必须使用与厂家推荐的相同或相近型号的电池。按照生产厂的建议处理废弃电池。

FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

The Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance with FCC emissions limits

For complete safety information about these products please read the Safety Compliances sheet, which is available online at www.extron.com.

The following symbols are used throughout the manual and carry the following meanings:

TIP: A Tip provides a suggestion to make setting up or working with the device easier.

NOTE: A Note draws attention to important information.

CAUTION: A Caution warns of things that might damage the equipment.

WARNING: A Warning warns of things that might cause injury, death, or other severe consequences.

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Trademarks

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Introduction

This section gives an overview of the user guide and describes the Extron® RGB 580xi and its features. Topics that are covered include:

- About this Guide
- About the RGB 580xi Interface
- Features

About this Guide

This guide describes the function, installation, configuration, and operation of the Extron RGB 580xi interface.

About the RGB 580xi Interface

The Extron RGB 580xi is an analog, remote-mountable computer video interface that can be installed in a location that is hidden from the view of the user. It features a 300 MHz (< -3 dB) video bandwidth.

It accepts one analog computer video input (RGBHV, RGBS, RGsB, or RsGsBs) on a 15-pin HD female connector and one unbalanced stereo audio input on a 3.5 mm stereo female jack. Five BNC female connectors provide video output (RGBHV, RGBS, and RGsB), and a five-pole captive screw connector provides stereo audio output.

A variety of Architectural Adapter Plates (AAP) with A/V inputs can be used in conjunction with the RGB 580xi and are ideal for installation in remote locations, including discreet mounting in the Extron Hideaway® Surface Access Products, such as the HSA 400, HSA 402 and HSA 822.

In addition, a series of RGB 580xi CC AAP plates are also available for Extron Cable Cubby® mounting.

In this guide, "RGB 580xi" and "remote interface" are used interchangeably.

Features

Stereo audio — Unbalanced, PC level stereo audio input can be output as balanced or unbalanced stereo audio.

Level and Peaking adjustments — Level and peaking controls compensate for signal losses over long cable runs. Level adjusts image brightness and peaking adjusts image sharpness.

Advanced Digital Sync Processing (ADSP™) — ADSP allows sync processing operations, such as horizontal centering, to occur without affecting the sync timing of the signal. This allows horizontal centering to be applied to signals that are output to digital display devices such as LCD projectors, DLP projectors and plasma displays. A front panel DIP switch provides another option, Digital Display Sync Processing™ (DDSP™), to ensure proper displays without altering sync pulse timing or width.

Remote contact closure — A contact closure signal can be sent to the interface from the remote AAP.

RS-232 control — A set of instructions are available via the Extron control software for Windows®, or a control system.

Installation and Operation

This section describes the installation and the operation of the RGB 580xi. Topics that are covered include:

- Installation Overview
- Application Diagrams
- Front Panel Features and Cabling
- Rear Panel Features and Cabling
- Front Panel Adjustments
- AAP Device Features
- Cabling the AAP Device Rear Connectors
- Cable Cubby AAP Device Features
- Cabling the Cable Cubby AAP Devices
- Troubleshooting

Installation Overview

CAUTION: Installation and service must be performed by authorized personnel only.

To install and set up an RGB 580xi, follow these steps:

1. Turn all of the equipment off. Make sure that the computer, the RGB 580xi, and the output devices (projector/monitor, speakers) are all turned off and disconnected from the power source.
2. For under-desk mounting:
   a. Determine the installation location: table, desk, podium, or other suitable location. If Architectural Adapter Plates are to be connected to the interface, consider where they will be located in relation to the interface. See "Application Diagrams".
   b. Mount the interface. See "Under-furniture Mounting".
3. Attach output cables to the rear panel of the interface and to the output devices. See "Rear Panel Features and Cabling".
4. Attach input cables to the input devices and to the front panel connectors of the interface. See "Front Panel Features and Cabling".
5. Set the front panel DIP switches. Use the "Front Panel Features and Cabling" section as a guide.
6. Connect power cords and turn on the output devices (projector/monitor, speakers). Next, power up the remote interface, and then the audio and video input devices.

7. The picture should appear, and sound should be audible. If not, ensure that all devices are plugged in and receiving power. Check the cabling and make adjustments as needed.
8. While watching the display, adjust the video level and peaking by using the rotary Level and Peaking controls. See "Front Panel Adjustments".

Application Diagrams

The RGB 580xi can be hidden from view and remotely connected to a computer through various Extron AAP and Cable Cubby (CC) AAP devices that are installed in office furniture or walls. Consult with your Extron sales representative concerning these AAP and CC AAP devices and AAP-capable products from which devices may be installed.

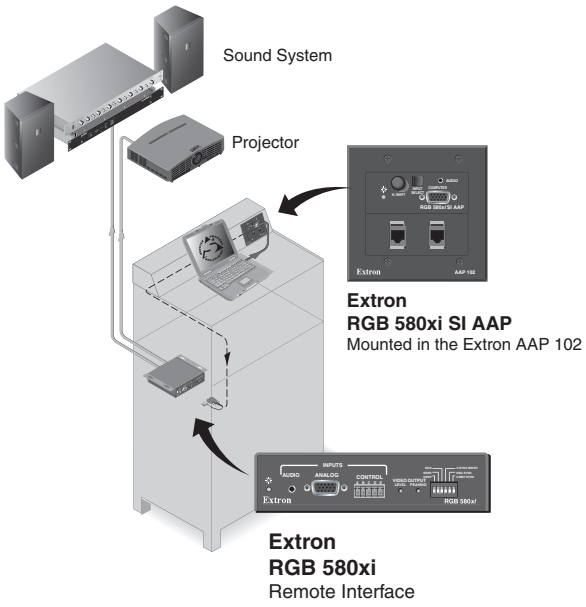


Figure 1. Podium Mounting of the RGB 580xi with an AAP Device

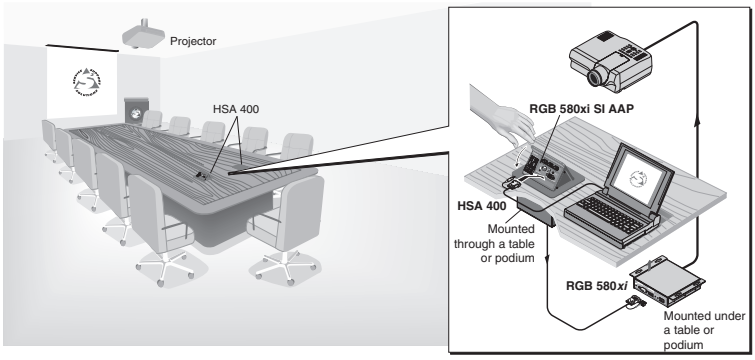


Figure 2. Table Mounting of the RGB 580xi with an AAP Device

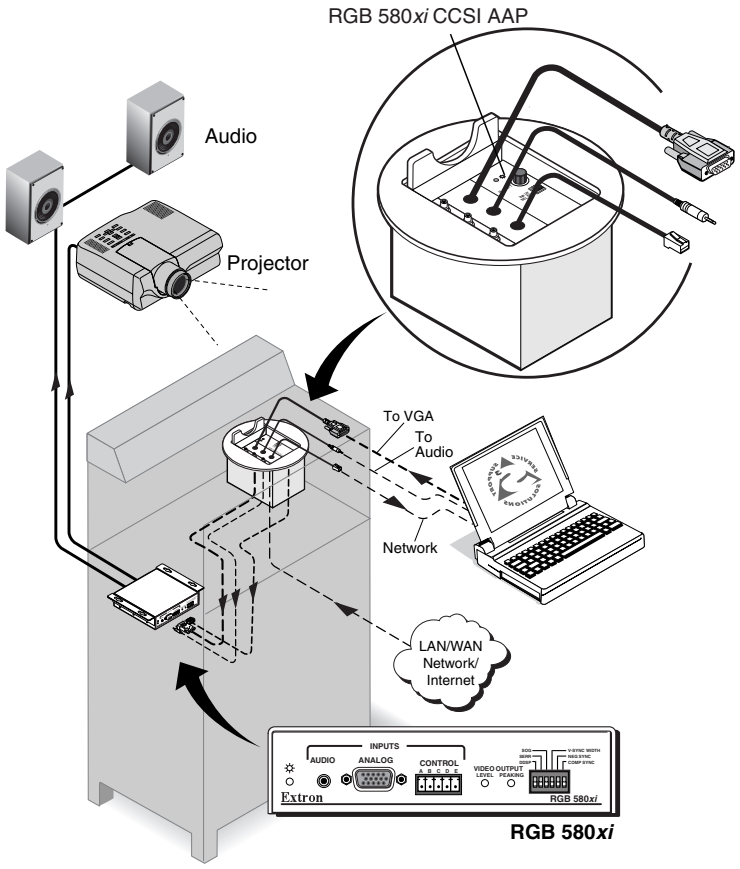


Figure 3. Podium Mounting of the RGB 580xi with a Cable Cubby AAP Device

NOTE: Refer to the *Cable Cubby User's Manual* for Cable Cubby installation instructions.

Front Panel Features and Cabling

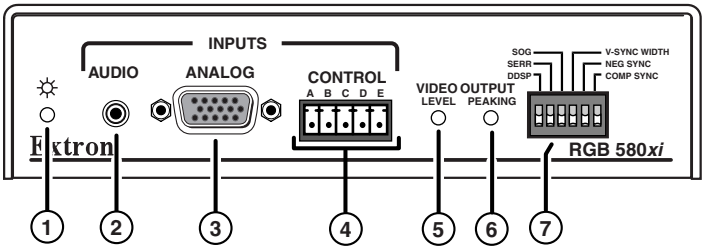


Figure 4. RGB 580xi Front Panel

① **Power/signal LED —** This LED lights green to indicate that the RGB 580xi is receiving power.

② **Audio input connector —** Plug a 3.5 mm stereo plug into this jack for unbalanced audio input. Wire the male plug as shown below.

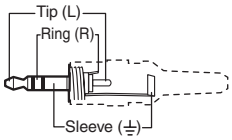
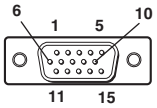


Figure 5. Audio Input Wiring

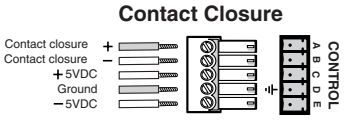
③ **RGB video input connector —** Attach a cable from the computer source to the RGB 580xi via this 15-pin HD female connector. The 15-pin HD male connector pin locations and pinout table are shown here.

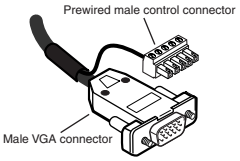


15-pin HD male pin out table

Pin	Description	Wire ID	Pin	Description	Wire ID
1	red signal	red coax	10	horizontal sync ground	black coax shield
2	green signal	green coax	10	vertical sync ground	yellow coax shield
3	blue signal	blue coax	10	audio ground	black wire
4	horizontal shift +	green wire	10	LED ground	yellow wire
5	horizontal shift –	brown wire	10	shift ground	grey wire
6	red coax ground	red coax shield	11	audio right	red wire
7	green coax ground	green coax shield	12	audio left	white wire
8	blue coax ground	blue coax shield	13	horizontal sync	black coax
9	LED red	orange wire	14	vertical sync	yellow coax
			15	LED green	pink wire

④ **Contact closure control connector —** Connect an optional contact closure device to this female 5-pole captive screw connector. Making contact closure between pins A and B transmits a channel signal through the RS-232 port. Extron RGB 580xi I AAP and RGB 580xi SI/CCSI AAP (see "AAP Device Features" and "Cable Cubby AAP Device Features" in this chapter) provide a one-button contact closure operation. Wire the male connector as shown in the following diagram on the left. The Extron VGA and control cable assembly (see "Optional RGB 580xi AAP Replacement Cables") comes with the male control connector prewired as shown in the following diagram on the right.





Pin	Contact Closure	Description
A	Contact closure +	Contact closure + circuit
B	Contact closure -	Contact closure - circuit
C	+5 V	+5 V source for powering AAP devices
D	Gnd	Signal ground for powering AAP devices
E	-5V	-5 V source for powering AAP devices

NOTE: The contact closure pins on the RGB 580xi's front panel are not to be used for horizontal shift control. See the horizontal shift control wiring in the 15-pin HD pin out table in ③ on the previous page.

⑤ **Video output: level control —** This control adjusts picture brightness by compensating for signal amplitude loss caused by cable resistance. See "Front Panel Adjustments".

⑥ **Video output: peaking control —** This control adjusts picture sharpness by compensating for cable capacitance caused by long cable runs. See "Front Panel Adjustments".

⑦ **DIP switches —** This bank of DIP switches controls DDSP (Digital Display Sync Processing), serration pulse output, SOG (sync on green) output, vertical sync width, sync polarity, and composite sync output. Moving a switch up sets it to On and moving it down sets it to Off.

NOTE: The default for all DIP switches is Off (down).

1 — DDSP (Digital Display Sync Processing) — This feature may be necessary for digital display devices such as LCD, DLP (digital light processing) and plasma displays. Use this option if the image is not displayed properly after other options, such as serration pulse and vertical sync pulse width, have been explored.

On — The interface uses DDSP instead of ADSP. DDSP does not process the sync signal.

NOTE: DDSP disables the horizontal shifting control.

Off — The interface performs sync processing operations, such as centering, with ADSP.

2 — Serr (serration pulse) — Many LCD and DLP projectors and plasma displays must have serration pulses removed from the sync signal in order to display properly. Flagging or bending at the top of the video image is a sign that the serration pulses should be removed.

On — The interface outputs serration pulses in the vertical sync interval.

Off — The interface does not output serration pulses.

3 — SOG (sync on green)

On — The interface outputs sync on green.

Off — The interface outputs separate horizontal and vertical sync (on the H and V connectors) for RGBHV.

4 — V-Sync Width (vertical sync pulse width) — For some digital display devices, if no picture appears, the picture cuts in and out, or the picture is scrambled, try adjusting the output vertical sync pulse width or switching from ADSP to DDSP.

On — The vertical sync pulse is narrow.

Off — The vertical sync pulse is wide.

5 — Neg Sync — This switch controls sync polarity.

On — Both the horizontal and the vertical sync signals are forced to negative polarity on output.

Off — Output sync polarity follows (is the same as) input polarity.

6 — Comp Sync — This switch controls composite sync output.

On — The interface outputs combined horizontal and vertical sync for RGBS.

Off — The interface outputs RGBHV or RGsB video.

Rear Panel Features and Cabling

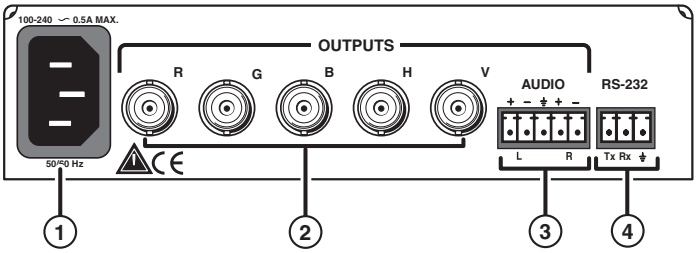


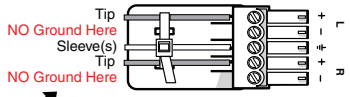
Figure 6. RGB 580xi Rear Panel

① **AC power connector —** Connect a standard IEC AC power cord here for power input (100 VAC to 240 VAC, 50/60 Hz) to the internal power supply.

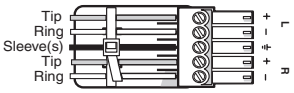
② **BNC output connectors —** Connect coaxial cables from a display device to these BNCs for one RGBHV, RGBS, or RGsB/RsGsBs video output as follows:

RGBHV **RGBS** **RGsB (Sync on Green)**
RsGsBs (output only if input is RsGsBs)

③ **Audio output connector —** Cable an audio device to the interface via this female 5-pole captive screw connector. Wire the male connector as shown below.

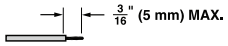


Unbalanced Audio Output



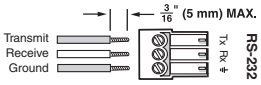
Balanced Audio Output

CAUTION
For unbalanced audio, connect the sleeve(s) to the ground contact.
DO NOT connect the sleeve(s) to the negative (-) contacts.



Do not tin the wires!

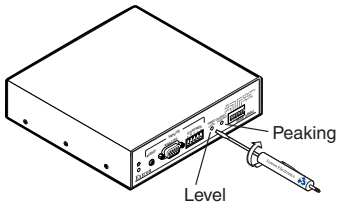
④ **RS-232 connector —** Connect an RS-232 device (control system or PC computer) to this female 3-pole captive screw connector for two-way RS-232 communication. Software for RS-232 control is included with the interface. See "Remote Control", for information on how to install and use the control software and SIS commands. Wire the male connector as shown below.



Front Panel Adjustments

Video signals passing through long cable runs of over 125 feet (38.1 meters) can decrease in strength, creating signal loss. The longer the cable, the greater the cable resistance and capacitance, and the greater the level and peaking adjustments that will be required to compensate for the resultant signal loss. These adjustments change the level and peaking of the output signal to compensate for capacitance caused by up to 1000 feet (304.8 meters) of Extron SHR cable.

NOTE: If the displayed image is too bright or too dark, try changing the level setting. If the edges of the displayed image seem to exceed their boundaries, or if thin lines and sharp edges look thick and fuzzy, try changing the peaking setting. See the illustration below.



1. **Level adjustment control —** The Video Output Level control alters the brightness of the displayed image. To adjust the video output level, view the display while using a small, flat-blade screwdriver to rotate this one-turn potentiometer. You can judge the adjustment visually by looking at the display.

   If the interface receives a typical (0.7 volts p-p) analog computer video input, the output is as follows:

   - At the minimum level setting (the counterclockwise limit of this control), the interface outputs video at 0.5 volts p-p.
   - Unity level is 0.7 volts p-p, the same as the input signal. Set the control to approximately one-half turn between the minimum and maximum level settings to output unity level video.
   - At the maximum level setting (the clockwise limit of this control), the interface outputs video at 1.45 volts p-p.

   Select a level setting of 0.7 volts or above to compensate for the decrease in signal level that occurs when the signal passes through long cables. Set the level at the maximum setting for cable lengths over 500 feet for all computer signals of 15 kHz to 135 kHz.

2. **Peaking control —** The Video Output Peaking control affects the sharpness of a picture. Increased peaking can compensate for detail (mid- and high-frequency) loss from low bandwidth system components or capacitance in long cables. The minimum setting (at the counterclockwise limit) provides no peaking. The maximum setting (at the clockwise limit) provides 100% peaking. Adjust this control while viewing the displayed image to obtain the optimum picture sharpness.

AAP Device Features

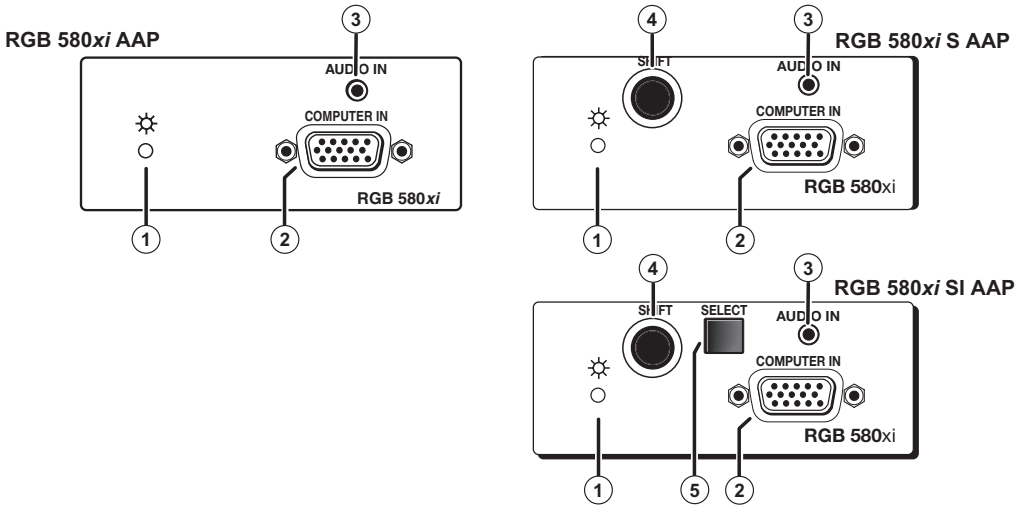


Figure 7. RGB 580xi AAP Front Panels

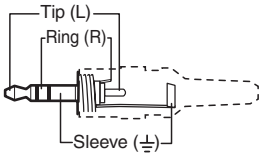
① **Power/signal LED —** This LED lights

- red to indicate that the AAP device is receiving power.
- green to indicate that an active sync signal is present at the input and that the AAP device is receiving power.

NOTE: The LED flashes green whenever the minimum and maximum limits of the horizontal shift control (H. shift) have been reached.

② **RGB video input connector —** Attach a cable from the computer source to this 15-pin HD female connector.

③ **Audio input connector —** Plug a 3.5 mm stereo plug into this jack for unbalanced audio input. Wire the male plug as shown below.



④ **Horizontal shift control knob (Shift) —** While viewing the displayed image, rotate this control to move the image to the right or left on the screen. The power/signal LED flashes green whenever the minimum and maximum limits of this control are reached.

NOTE: DDSP disables the horizontal shifting control.

⑤ **Input select button —** Pressing this button results in contact closure between pins A and B of the contact closure control connector on the front panel of the RGB 580xi.

Cabling the AAP Device Rear Connectors

Various Extron AAP devices for the RGB 580xi may come with several rear connectors that require cabling.

NOTE: Although the VGA and control cable/LED assembly comes prewired to the captive screw connectors, any subsequent cable assembly replacement will require the following cabling instructions.

To cable the captive screw connectors, refer to the following diagrams and position the wires according to the view angle of the captive screws. When using the Extron VGA and control cable assembly (see "Optional RGB 580xi AAP Replacement Cables" for part numbers), refer to the color of each wire for signal identification.

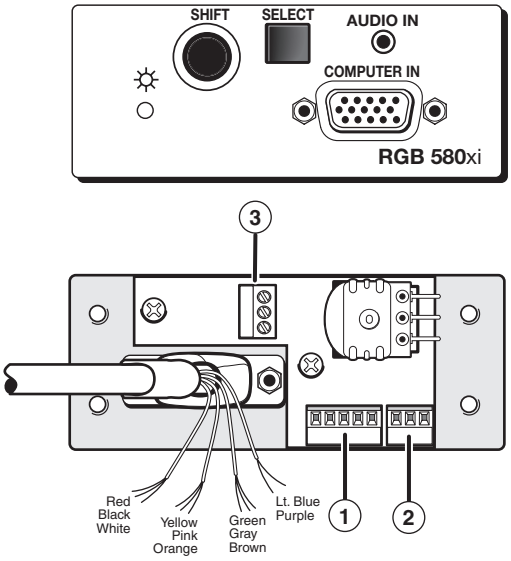
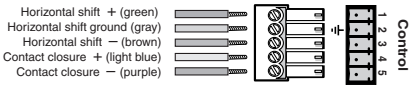
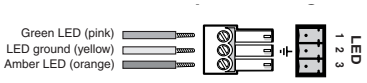


Figure 8. Example of AAP Device Rear Connectors

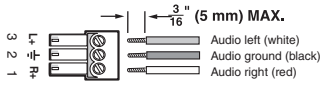
① **Control connector (J4) —** Insert wires into and tighten the screws on the 3.5 mm, 5-pole captive screw connector. This connector is used for contact closure and horizontal shifting signals. Wire the connector as shown in the following illustration.



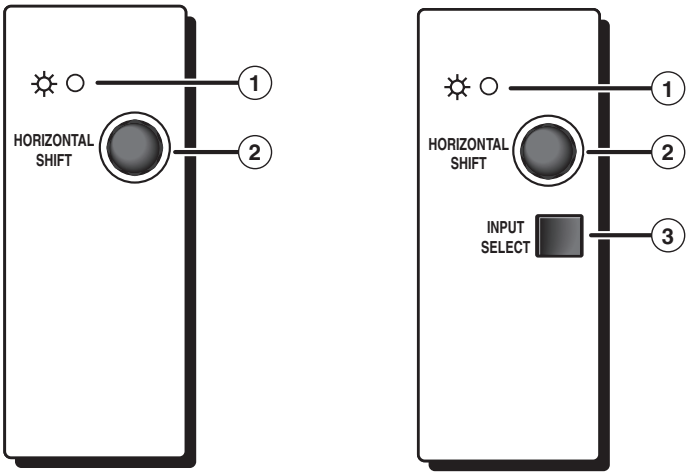
② **LED connector (J2) —** Insert wires into and tighten the screws on the 3.5 mm, 3-pole captive screw connector. This connector is used for powering the green and amber LEDs. Wire the connector as shown in the following illustration.



③ **Audio output connector (J3) —** Insert wires into and tighten the screws on the 3.5 mm, 3-pole captive screw connector. This connector is used for unbalanced stereo audio output. Wire the connector as shown in the following illustration.



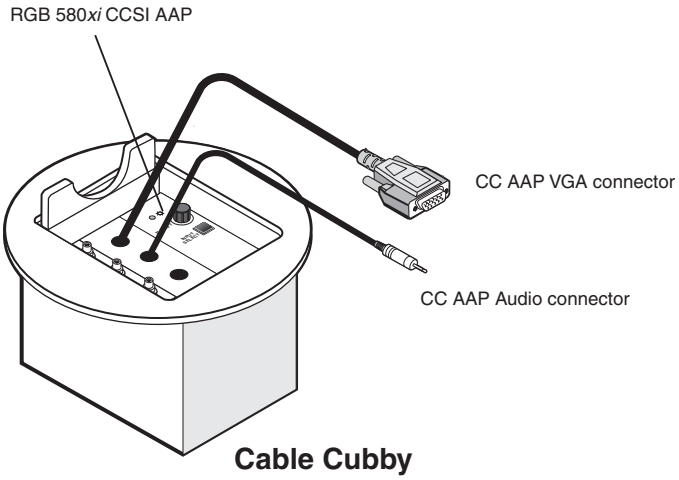
Cable Cubby AAP Device Features



RGB 580*xi* CCS AAP **RGB 580*xi* CCSI AAP**

Figure 9. RGB 580xi AAP Front Panels

Installation of the RGB 580xi CC AAP devices in a Cable Cubby allows the VGA and audio cable connectors of the CC AAP device to be accessible, as shown in the following diagram.



Cable Cubby

① **Power/signal LED —** This LED lights

- red to indicate that the CC AAP device is receiving power.
- green to indicate that an active sync signal is present at the input and that the CC AAP device is receiving power.

NOTE: The LED flashes green whenever the minimum and maximum limits of the horizontal shift control (H. shift) have been reached.

② **Horizontal shift control knob —** While viewing the displayed image, rotate this control to move the image to the right or left on the screen. The power/signal LED flashes green whenever the minimum and maximum limits of this control are reached.

NOTE: DDSP disables the horizontal shifting control.

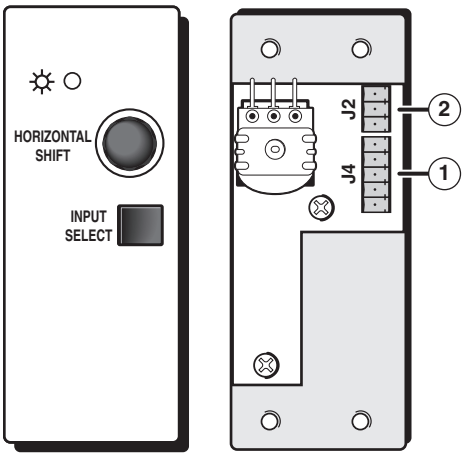
③ **Input select button —** Pressing this button results in contact closure between pins A and B of the contact closure control connector on the front panel of the RGB 580xi.

Cabling the Cable Cubby AAP Devices

Various Extron CC AAP devices for the RGB 580xi come with rear panel connectors that may require cabling.

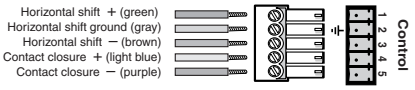
NOTE: Although the control cable/LED cable assembly comes prewired to the captive screw connectors, any subsequent connector replacement will require the following cabling instructions.

To cable the captive screw connectors, refer to the following diagrams and position the wires according to the view angle of the captive screws.

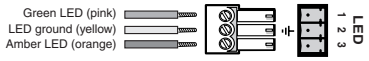


RGB 580*xi* CCSI AAP

① **Control connector (J4) —** Insert wires into and tighten the screws on the 3.5 mm, 5-pole captive screw connector. This connector is used for contact closure and horizontal shifting signals. Wire the connector as shown in the following illustration.



② **LED connector (J2) —** Insert wires into and tighten the screws on the 3.5 mm, 3-pole captive screw connector. This connector is used for powering the green and amber LEDs. Wire the connector as shown in the following illustration.



NOTE: The VGA and audio cable assemblies are routed through the Cable Cubby. Refer to the *Cable Cubby User's Manual* for Cable Cubby installation instructions.

Troubleshooting

Turn on the input devices (computer, audio device) and output device(s) (projector, monitors, speakers). The image should now appear on the screen, and sound should be audible.

If the Image Does Not Appear or There is No Sound

1. Ensure that all devices are plugged in.
2. Make sure that each device is receiving power. The front panel LED lights green if the interface is receiving power.
3. Check the cabling and the audio connector wiring and grounding, and make adjustments as needed.
4. For digital display devices (including LCD, DLP and plasma devices), try turning DDSP on or off using the front panel DIP switch.
5. To test the system setup and output, substitute a video test generator for the computer input. Unplug the power cords of the input/output devices and the remote interface, replace the video source with a VTG, then reconnect the power cords to restore AC power.
6. Call the Extron S^3 Sales & Technical Support Hotline if needed.

If the Image is Not Displayed Correctly

1. If the output image looks too green, the sync on green (SOG) DIP switch may be set to On, and the display device may not be configured to handle SOG signals. Set SOG to Off.
2. If the picture bends or flags at the top of the screen, set the serration pulse DIP switch to Off.
3. For a display device that experiences intermittent glitches, try turning DDSP on or off using the front panel DIP switch.
4. If the picture "hangs off" the left or right edge of the screen, and an RGB 580xi S AAP, RGB 580xi CCS AAP, RGB 580xi SI AAP, or RGB 580xi CCSI AAP device is connected to the interface, adjust the horizontal shift (H. Shift) control of the AAP to center the image.
5. If the edges of the image seem to exceed their boundaries or if thin lines and sharp edges look thick and fuzzy, try changing the Peaking control setting. If the image is too bright or dark, try changing the Level control setting.
6. If the image still does not display correctly, call the Extron S^3 Sales & Technical Support Hotline.

Remote Control

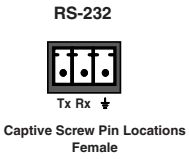
This section discusses how to connect and configure the RGB 580xi. Topics that are covered, include:

- **RS-232 Programmer Guide**
- **Windows®-Based Program Control**
- **Contact Closure Remote Control**

RS-232 Programmer Guide

The interface can be remotely controlled via a host computer attached to the 3-pole captive screw RS-232 connector on the rear panel. A contact closure control system may also be used by connecting a contact closure device to the front panel's female 5-pole captive screw connector. The protocol is 9600 baud, 1 stop bit, no parity, and no flow control.

The RS-232 control device (host) can use either the Extron Simple Instruction Set (SIS™) commands or the graphical control program for Windows. RS-232 control software is included with the interface.



The RS-232 3-pole female connector on the rear panel has the following pin assignments:

Pin	RS-232 function	Description
1	Tx	Transmit data
2	Rx	Receive data
3	Gnd	Signal ground

Host-to-interface Communications

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command sequence. When a command is valid, the interface executes the command and sends a response to the host device. All responses from the interface to the host end with a carriage return and a line feed (CR/LF = ↵), which signals the end of the response character string. A string is one or more characters.

Interface-initiated Messages

When a local event such as a front panel or contact closure selection or adjustment takes place, the interface sends a message to the host. No response is required from the host. The interface-initiated messages are listed here (underlined).

(C) Copyright 2001, Extron Electronics, RGB 580xi, Vx.xx ↵
The interface displays the copyright message when it first powers on. Vx.xx is the firmware version number.

RECONFIG ↵

When the RGB video input of the remote interface is disconnected or the horizontal shift control (H. shift) is adjusted from the AAP device (RGB 580xi S/CCS AAP and RGB 580xi SI/CCSI AAP), the interface sends the reconfiguration message. No response is required from the RS-232 host, but the host may request a new status listing via the request information command (I/i). See the command/response table in this chapter for details.

Chn ↵

A contact closure selection has been detected from the remote AAP contact closure switch (RGB 580xi I AAP and RGB 580xi SI/CCSI AAP).

Error Responses

When the interface receives a valid SIS command, it executes the command and sends a response to the host device. If the interface is unable to execute the command because the command is invalid or it contains invalid parameters, it returns an error response to the host.

The error response codes and their descriptions are as follows:

E10 – Invalid command

E13 – Invalid value (the number is out of range)

Using the Command/Response Table

The command/response table lists valid command ASCII codes, the responses from the interface to the host, and a description of the command or the results of executing the command. Lowercase characters are acceptable in the command field only where indicated. The ASCII to HEX conversion table below is for use with the command/response table.

ASCII to HEX Conversion Table										Esc	1B	CR	ØD	LF	ØA
Space	2Ø	!	21	"	22	#	23	$	24	%	25	&	26	'	27
(	28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F
Ø	3Ø	1	31	2	32	3	33	4	34	5	35	6	36	7	37
8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F
@	4Ø	A	41	B	42	C	43	D	44	E	45	F	46	G	47
H	48	I	49	J	4	K	4B	L	4C	M	4D	N	4E	O	4F
P	5Ø	Q	51	R	52	S	53	T	54	U	55	V	56	W	57
X	58	Y	59	Z	5A	[	5B	\	5C	]	5D	^	5E	_	5F
`	6Ø	a	61	b	62	c	63	d	64	e	65	f	66	g	67
h	68	i	69	j	6A	k	6B	l	6C	m	6D	n	6E	o	6F
p	7Ø	q	71	r	72	s	73	t	74	u	75	v	76	w	77
x	78	y	79	z	7A	{	7B	I	7C	}	7D	~	7E	DEL	7F

Symbol Definitions

↵ = CR/LF (carriage return/line feed, hex 0D 0A)

• = Space

X1 = Shift control range (-63 to +63)

X2 = Controller firmware version (listed to two decimal places: x.xx)

X3 = Frequency in Hz or kHz (listed as xxx.xx)

Command	ASCII (host to interface)	Response (interface to host)	Additional Description
		Chn↵	Contact closure has been detected across pins 1 and 2.
NOTE: Whenever the Input select button on the AAP device is pressed, contact closure is initiated at the RGB 580xi remote interface and a signal is sent from the RS-232 port of the remote interface.			
Horizontal shift			
Specify horizontal shift	X1H	HphX1↵	Set horizontal shift value
Shift right one step	{H	HphX1↵	Increment up
Shift left one step	}H	HphX1↵	Increment down
Firmware version, part number, information requests, and reset			
Query firmware version number	Q/q	X2↵	Display version (Ver. x.xx)
Request part number[7]	N/n	N_60-362-01↵	Display part number of interface
Request information	I/i	Hph X1 •Hrt X2 •Vrt X3 ↵	Display status

Windows®-Based Program Control

The included graphical control software for Windows offers another way to control the interface via RS-232 in addition to the Simple Instruction Set commands listed on the previous page.

The control software is compatible with Windows 2000, Windows XP, and later versions of Windows. Upgrades to the program can be downloaded from the Extron Web site (www.extron.com).

Installing the Software

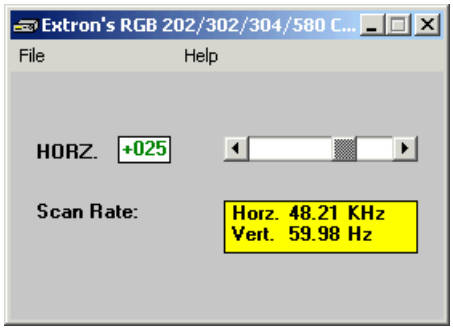
The control program is contained on the included disk. To install the program, insert the disk into the drive of the computer. If the installation window does not start automatically, run Launch.exe from the disk and follow the instructions that appear on the screen.

By default the installation creates a C:\Program Files\Extron Electronics folder, containing the RGB 580 Windows control program. An icon may be placed on the Windows desktop.

Using the Software

To run the control program, follow these steps:

1. Double-click on the RGB 302 + 304 Control Pgm icon in the Extron Electronics group or folder. The Comm menu appears on the screen.
2. Click on the comm port that is connected to the RS-232 port of the interface. The control software "looks for" the interface at that port and reads its configuration. The control program window (shown below) appears and displays current settings.



For information on program features, press the F1 computer key, click on the Help menu from within the control program, or double-click on the RGB 302+304 Help icon in the Extron Electronics group or folder.

Contact Closure Remote Control

For contact closure, connect a contact closure remote control device to the contact closure female 5-pole captive screw connector of the front panel. Various AAP devices and cable assemblies are also available from Extron to provide remote contact closure capability. The pin assignments for the contact closure connector of the RGB 580xi are shown in the following table.

Pin	Contact Closure	Description
A	Contact closure +	Contact closure + circuit
B	Contact closure -	Contact closure - circuit
C	+5 V	+5 V source for powering AAP devices
D	Gnd	Signal ground for powering AAP devices
E	-5V	-5 V source for powering AAP devices

Specifications, Part Numbers, and Accessories

This section discusses the specifications, part numbers, and accessories for the RGB 580xi. Topics that are covered, include:

- Specifications
- Part Numbers and Accessories

Specifications

Video — RGB 580xi

Gain	0.35 V to 1.45 Vp-p
Bandwidth	300 MHz (-3 dB)

Video input — RGB 580xi

Number/signal type	1 analog VGA-QXGA RGBHV, RGBS, RGsB, RsGsBs
Connectors	1 female 15-pin HD
Nominal level	0.7 Vp-p for RGB
Minimum/maximum levels	Analog: 0.3 V to 1.45 Vp-p with no offset
Impedance	75 ohms or high Z, switchable (set to 75 ohms if no local monitor is connected)
Horizontal frequency	Autoscan 15 kHz to 150 kHz
Vertical frequency	Autoscan 40 Hz to 140 Hz
Return loss	<-30 dB @ 5 MHz
DC offset (max. allowable)	2.0 V

Video input — RGB 580xi AAP, RGB 580xi S AAP, RGB 580xi SI AAP

Number/signal type	1 analog RGBHV, RGBS, RGsB, RsGsBs
Connectors	1 female 15-pin HD

Video output — RGB 580xi

Number/signal type	1 analog RGBHV, RGBS, RGsB
Connectors	5 female BNC
Nominal level	0.7 Vp-p for RGB
Minimum/maximum levels	0.35 V to 1.45 Vp-p
Impedance	75 ohms
Return loss	-30 dB @ 5 MHz
DC offset	±5 mV maximum with input at 0 offset

Video output — RGB 580xi AAP, RGB 580xi S AAP, RGB 580xi SI AAP

Number/signal type	1 analog RGBHV, RGBS, RGsB
Connectors	1 female 15-pin HD

Sync

Input type	RGBHV, RGBS, RGsB, RsGsBs
Output type	RGBHV, RGBS, RGsB
Input level	2 V to 5.5 Vp-p with ±0.2 VDC offset max.
Output level	TTL: 4 V to 5 Vp-p, unterminated
Input impedance	510k ohms
Output impedance	75 ohms
Max. propagation delay	85 ns
Max. rise/fall time	2 ns
Polarity	
RGBHV	Polarity follows input when RGBHV is input and the sync polarity switch is set to Off. Sync polarity is negative if the sync polarity switch is set to On.
RGBS, RGsB	Negative

Audio

Gain	Unbalanced output: 0 dB; balanced output: +6 dB
Frequency response	20 Hz to 20 kHz, ±0.05 dB
THD + Noise	0.03% @ 1 kHz, 0.3% @ 20 kHz at nominal level
S/N	>90 dB at maximum output, balanced (unweighted)
Stereo channel separation	>90 dB @ 1 kHz to 20 kHz

Audio input

Number/signal type	1 PC level stereo, unbalanced
Connectors	(1) 3.5 mm stereo mini audio jack (female) (tip, ring, sleeve)
Impedance	>5k ohms, unbalanced, DC coupled
Nominal level	-10 dBV (316 mV)
Maximum level	+8.5 dBu, (balanced or unbalanced) at 1% THD+N

NOTE: All nominal levels are at ±10%.

Audio output

Number/signal type	1 buffered stereo (2 channel), balanced/unbalanced
Connectors	(1) 3.5 mm, captive screw connector, 5 pole
Impedance	50 ohms unbalanced, 100 ohms balanced
Gain error	±0.1 dB channel to channel
Maximum level (600 ohm)	> +14 dBm, balanced or unbalanced at 1% THD+N

Control/remote — interface

Serial control port	RS-232, captive screw connector, 3 pole
Baud rate and protocol	9600 baud, 8 data bits, 1 stop bit, no parity
Serial control pin configuration	1 = TX, 2 = RX, 3 = GND
Program control	Extron control/configuration program for Windows® Extron Simple Instruction Set (SIS™)

General

Power	
RGB 580xi	100 VAC to 240 VAC, 50-60 Hz, 18 watts, internal
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Convection, vents on sides
Mounting	
Furniture mount	Yes, with included under-desk mounting kit
Enclosure type	Metal (vented)

Enclosure dimensions

- RGB 580xi ..... 1.75" H x 6.4" W x 6.0" D
  4.4 cm H x 16.3 cm W x 15.2 cm D
  (Depth excludes connectors.)
- RGB 580xi AAP models
  - Faceplate ..... 1.4" H x 3.5" W x 0.1" D (3.6 cm H x 8.9 cm W x 0.3 cm D)
    (double-space high AAP plates)
  - Circuit board..... 1.3" H x 2.5" W x 0.9" D
    (3.3 cm H x 6.4 cm W x 2.3 cm D)
    (Depth excludes connectors, knobs, and faceplate.)

Product weight

- RGB 580xi I AAP 3', RGB 580xi SI AAP 3'
  0.4 lbs (0.2 kg)
- RGB 580xi AAP 3', RGB 580xi S AAP 3'
  0.5 lbs (0.3 kg)
- RGB 580xi AAP 6', RGB 580xi I AAP 6'
  0.6 lbs (0.3 kg)
- RGB 580xi S AAP 6', RGB 580xi SI AAP 6'
  0.7 lbs (0.3 kg)
- RGB 580xi AAP 12', RGB 580xi S AAP 12', RGB 580xi SI AAP 12'
  1.0 lbs (0.5 kg)
- RGB 580xi ..... 1.2 lbs (0.5 kg)

Shipping weight

- AAP models..... 2 lb (1 kg)
- RGB 580xi ..... 4 lbs (2 kg)

Vibration..... ISTA 1A in carton (International Safe Transit Association)

Regulatory compliance

- Safety ..... CE, c-UL, UL
- EMI/EMC ..... CE, C-tick, FCC Class A, ICES, VCCI

MTBF ..... 30,000 hours

Warranty..... 3 years parts and labor

NOTE: All nominal levels are at ±10%.

NOTE: Specifications are subject to change without notice.

Part Numbers and Accessories

Included Parts

Included parts	Replacement part number
RGB 580xi	60-362-01
3.5 mm, 5-pole captive screw connectors (10)	100-460-01
3.5 mm, 3-pole captive screw connectors (10)	100-459-01
MBU 125 under-desk mount kit	70-077-01
RGB 580xi setup guide	
IEC power cord	
Windows -based control software	

Optional AAP Cables

Accessories	Part number
RGB 580xi AAP 3' (0.9 m) (black, white)	70-128-02, -03
RGB 580xi AAP 6' (1.8 m) (black, white)	70-129-02, -03
RGB 580xi S AAP 3' (0.9 m) (black, white)	70-134-02, -03
RGB 580xi S AAP 6' (1.8 m) (black, white)	70-135-02, -03
RGB 580xi SI AAP 3' (0.9 m) (black, white)	70-137-02, -03
RGB 580xi SI AAP 6' (1.8 m) (black, white)	70-138-02, -03

Optional Cable Cubby AAP Cables

Accessories	Part number
RGB 580xi CCS AAP 9' (2.7 m) (black)	70-254-02
RGB 580xi CCS AAP 12' (3.6 m) (black)	70-255-02
RGB 580xi CCSI AAP 9' (2.7 m) (black)	70-256-02
RGB 580xi CCSI AAP 12' (3.6 m) (black)	70-257-02

Optional RGB 580xi AAP Replacement Cables

NOTE: These cables apply only to the RGB 580xi AAP, RGB 580xi S AAP, and RGB 580xi SI AAP; they **do not** apply to the RGB 580xi CCS AAP or RGB 580xi CCSI AAP.

Accessories	Part number
RGB 580xi AAP replacement cable 12' (3.6 m)	26-521-03
RGB 580xi AAP replacement cable 25' (7.6 m)	26-521-04
RGB 580xi AAP replacement cable 35' (10.6 m)	26-521-05

Mounting

This section discusses how to connect and configure the RGB 580xi. Topics that are covered, include:

- **Under-furniture Mounting**
- **Mounting the Optional AAP Device**
- **Mounting Template**

Under-furniture Mounting

1. Attach the under-desk mounting brackets (part #70-077-01) to the interface with the four machine screws (provided in the mounting kit), as shown below. This procedure may also apply to table or podium mounting applications. See "Application Diagrams".
2. Hold the interface with attached brackets against the underside of the desk or other furniture. Mark the location of holes for screws on the desk. See "Mounting Template" for mounting dimensions.
3. Drill 1/4 inch (6.4 mm) deep, 3/32 inch (2.38 mm) diameter pilot holes in the table or desk at the marked screw locations from the underside or inside (concealed side) of the furniture, where the interface will be located.
4. Insert the four wood screws into the pilot holes. Fasten each screw into the installation surface until just less than 1/4 inch of the screw protrudes.
5. Align the installed screws with the slots in the mounting brackets, and place the interface against the surface, with the screws through the bracket slots.
6. Slide the interface slightly forward or back, then tighten all four screws to fasten it in place.

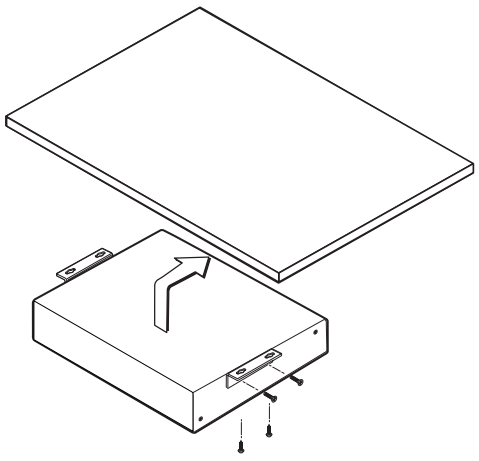


Figure 10. Under-desk Mounting of the RGB 580xi

Mounting the Optional AAP Device

Various Extron RGB 580xi AAP double-space devices may be mounted to any Extron product that has an AAP faceplate, or to an Extron AAP wallplate. The AAP device should be cabled before it is attached to a faceplate or wallplate (see "Cabling the AAP Device Rear Connectors"). The screws needed for installing an AAP device are built into its front panel, so no additional screws are needed.

1. Insert the screws of the AAP through the holes in the AAP faceplate or the AAP wallplate. Secure the AAP device to the faceplate or wallplate with the provided captive washers and #4-40 nuts.

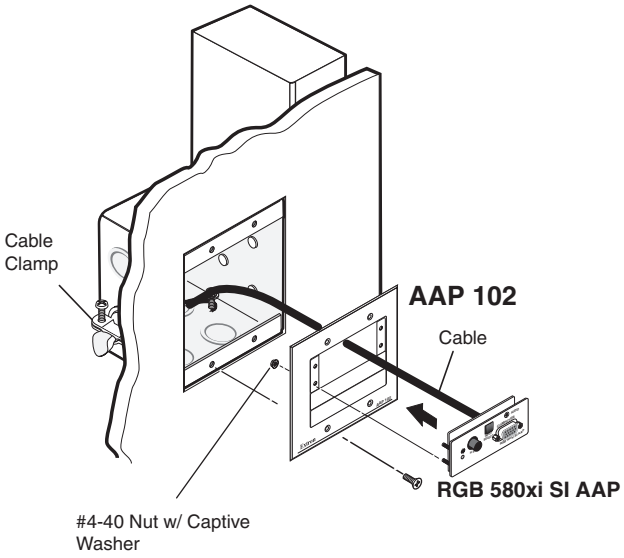


Figure 11. Example of Mounting an AAP Device to a Wallplate

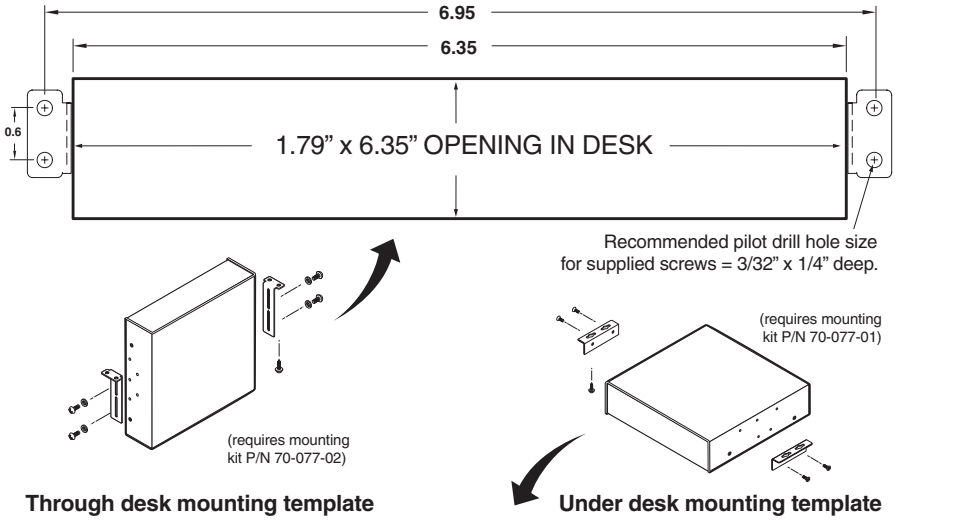
2. Follow steps **3** through **8** in the "Installation Overview" section.

Mounting Template

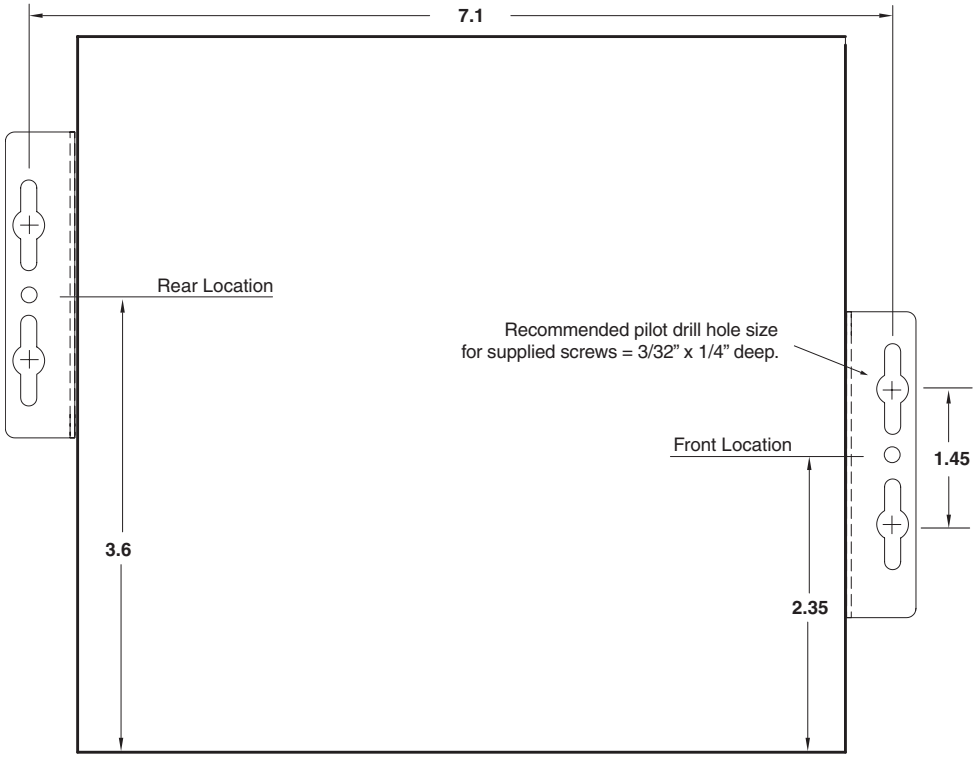
Dimensions

For under-desk mounting, use the bracket mounting kit that is included with the RGB 580xi, and see the template diagram below.

NOTE: These cables apply only to the RGB 580xi AAP, RGB 580xi S AAP, and RGB 580xi SI AAP; they **do not** apply to the RGB 580xi CCS AAP or RGB 580xi CCSI AAP.



Through desk mounting template **Under desk mounting template**



RGB 580xi
Mounting Bracket Templates

NOTE: All dimensions are in inches.
Drawing not to scale.

Extron® Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:
Extron Electronics
1001 East Ball Road
Anaheim, CA 92805
U.S.A.

Japan:
Extron Electronics, Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

Europe, Africa, and the Middle East:
Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

China:
Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Asia:
Extron Asia
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Middle East:
Extron Middle East
Dubai Airport Free Zone
F12, PO Box 293666
United Arab Emirates, Dubai

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions, or modifications were made to the product that were not authorized by Extron.

NOTE: If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

USA: (714) 491-1500 **Europe**: 31.33.453.4040
Asia: 65.6383.4400 **Japan**: 381.3.3511.7655

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

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